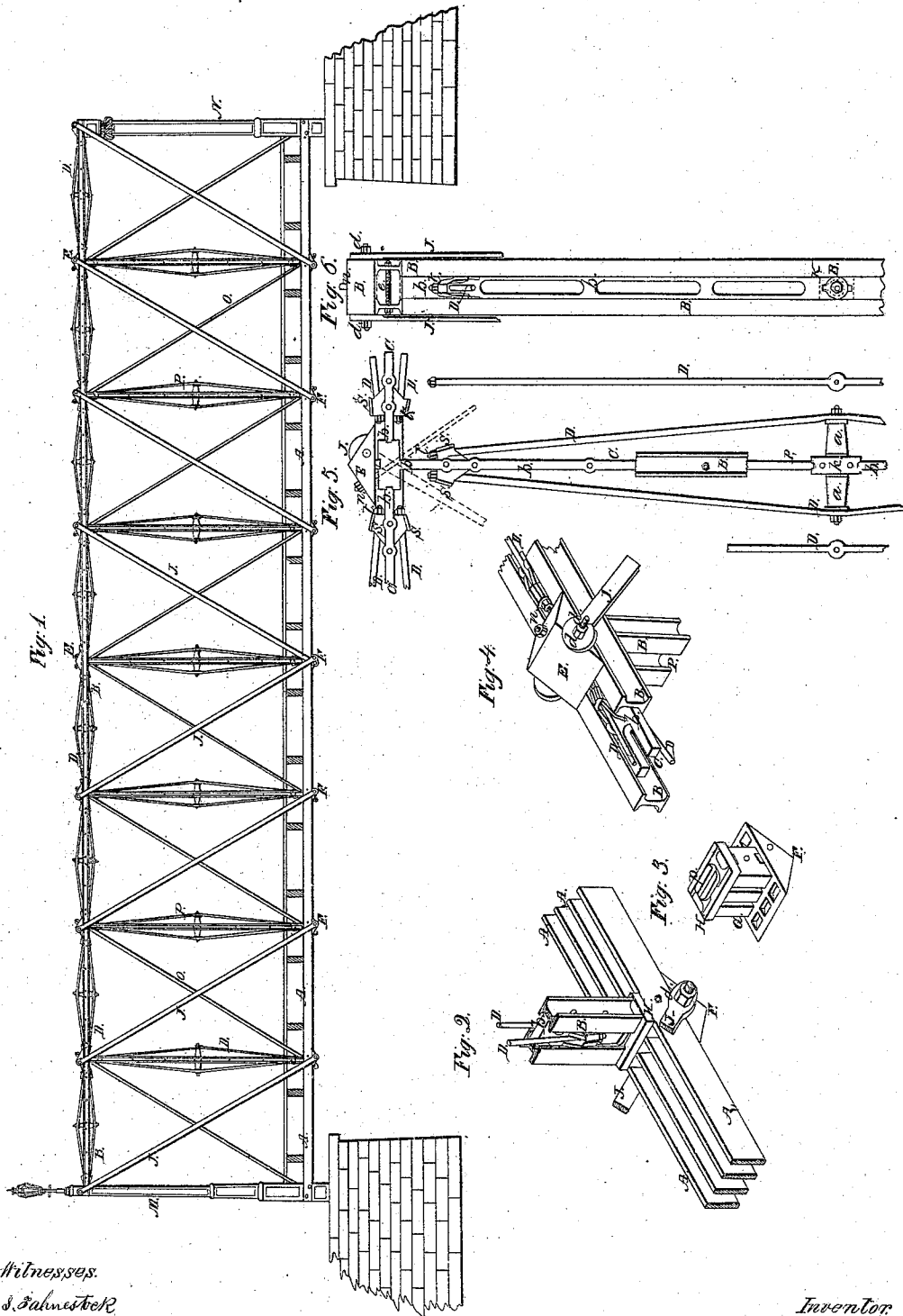


# F. E. Canda. Truss Bridge.

N<sup>o</sup> 88,446.

Patented Mar 30, 1869.



Witnesses.  
S. S. Babcock  
Balt's Dr. Long.

Inventor.  
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# United States Patent Office.

F. E. CANDA, OF CHICAGO, ILLINOIS.

Letters Patent No. 88,446, dated March 30, 1869.

## IMPROVED IRON BRIDGE.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern :

Be it known that I, F. E. CANDA, of Chicago, in the county of Cook, in the State of Illinois, have invented a new and improved Iron Bridge; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which like parts are indicated by like letters in the several figures.

The nature of my invention consists principally in a peculiar construction of the posts and tops of the panels, to be hereafter more fully described, and tying the upper and lower chords, whereby great strength is obtained, economy subserved, and the structure can easily be put up or taken apart, and transported, &c.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the drawings—

Figure 1 represents a side elevation of my improved bridge;

Figure 2, a perspective view of a detached portion of the bottom chords, with angle-blocks, key, and part of post;

Figure 3, a perspective view of lower angle-block, key, and foot-plate, detached.

Figure 4, a perspective view of a portion of the top chord, angle-block, &c.

Figure 5, side view or part elevation of the inside of a post, top chord, and their connections; and

Figure 6 is an end view of a part of a post, &c.

A represents the several members of wrought-iron bottom chord, which may vary in number, size, &c., as necessity requires.

B represents the wrought-iron I-beams of the top chord, inside of which is a cast-iron centre member, C, shown more distinctly in figs. 4, 5, and 6.

D are the wrought-iron truss-rods, connecting the several parts of the centre member C.

E is a top angle-block, over each post, and e, a key, underneath the same, which connects the centre members, C, on each side, as seen in fig. 5.

P represents the upright posts, which separate the upper and lower chords, and they are constructed as in each panel of the top chord.

The centre member, C, of post and top chord, is composed of three pieces, b, b, and k, the latter being the middle piece, and a key, with arms a a, to receive truss-rods, as seen in fig. 5, the truss-rods, D, being bolted through the arms.

At the extreme ends of the centre member C, or its parts a a, there are sockets, S, which are cast on the same, and through which the truss-rods pass, and are secured by nuts t.

F is a lower angle-block, and in fig. 3 there is seen attached to it, or placed on it, a key, G, of bottom chord, and a foot-plate, H, for post.

The wrought-iron I-beams B of the post P and of the top chord are riveted, or bolted together through the cast-iron member C, as seen in several of the figures.

The lower part, b, of the centre member C of post P, is keyed into the foot-plate H, as seen at p, fig. 3.

J represents the main tie-rods, connecting the upper and lower chords. At each they are "upset," or a piece of iron is welded on, in order to give them the required size or strength, and holes are drilled, or punched for bolts.

They are connected to angle-blocks E and F, at top and bottom, by steel bolts, or connection-pins, d, which I prefer.

O are the counter tie-rods, which pass diagonally through the angle-blocks between J, and in an opposite direction, and are secured at each end by nuts n.

M and N represent the end posts, or columns of a span, which may be made of wrought or cast-iron, at one end of a span resting upon wrought-iron rolls, to provide for expansion or contraction of structure.

The posts and top chords, constructed as shown and described, are, with the truss-rods, entirely guarded against vibration, and cannot possibly deflect between panels, which enables me to provide the required strength in my bridge, with at least one-third less iron than can be obtained in any other bridge.

The several members, A, of the bottom chord are bolted through the lower key, G, of post P, as seen in figs. 2 and 3.

The connection of main tie-rods to angle-blocks with steel pins, also connection of counter-rod combined, has this advantage, that the steel pin will prevent the angle-blocks from splitting, and adds safety to the structure.

The trussing of the posts and top chord or chords can be applied to any of the known forms of truss-bridges.

As regards the lateral and diagonal braces connecting the trusses, as well as floor-beams, they may be the same as have been in general use on other bridges.

The top members of the panels being all connected together, they form the top chord.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The peculiar construction of the posts P, when the same are applied to a bridge, either as posts or top members of each panel, their several parts being combined and arranged in the manner substantially as shown and described, and for the purpose set forth.

2. The combination of the top members of each panel in a bridge, provided with the posts above described, with the connecting-parts, constructed and operating in the manner as shown and described, forming the upper chord.

3. The combination of the posts P with the bottom chord A, in the manner as shown and described.

4. The combination of the top chord, angle-block E, rods O J, posts P, plate H, key G, angle-block F, and bottom chord A, constructed and arranged as shown and described.

Witnesses:

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